

1. Introduction

This report marks the continuation of the EIA series on equipment and operating costs and cost indices for oil and gas leases. In addition to cost comparisons within the petroleum industry, the data reported here are often used to assess the economic effects of specific plans and policies relating to the industry. No other source offers the detail of this report.

Only a few publications contain or have contained data relating to costs in the petroleum industry. For several years, the American Petroleum Institute (API), the Independent Petroleum Association of America, (IPAA), and the Mid-Continent Oil and Gas Association have published cost statistics in their *Joint Association Survey of the U.S. Oil and Gas Producing Industry*.^{1,2} Section I of that publication pertains to drilling costs. Section II (discontinued after 1975) presented total U.S. expenditures for exploration, development, and production.

For several years the U.S. Bureau of the Census surveyed a group of companies classified by size and published a report titled *Annual Survey of Oil and Gas*³ in its Current Industrial Report series. These reports contained oil and gas operating cost data for both direct and indirect expenses but were discontinued after 1982.

Other than EIA's, no series of non-aggregated oil and gas field equipment and operating costs and subsequent indices has been published on a regional basis. Equipment and operating costs vary from region to region because of differences in fuel costs, labor rates, and other variables. (See Figures 1 and 2 for areas of oil and gas production.) Therefore, equipment and operating costs and cost indices are estimated by EIA on a regional basis for both oil and gas fields.

The costs and cost indices provided in this report are for representative lease operations with equipment and operating procedures designed by EIA staff engineers for representative 10-well oil leases producing by artificial lift or 1 flowing well per gas lease. The design criteria took into

account the predominant methods of operation in each region. Individual items of equipment were priced by using price lists and by communication with the manufacturer or supplier of the item in each region. Except as mentioned in the Executive Summary and treated in Appendix N, all costs presented in this report are current to their year and not adjusted for inflation.

Freight costs and installation costs were determined based on regional rates. These costs were summed for each category of equipment. For example, the category listed as "pumping equipment" for a rod pump system includes:

- A pumping unit
- Additional counter-weights
- Crank guards
- Belt guards, V-belts and sheaves
- Freight costs
- Installation costs.

Conversion of primary oil producing leases to secondary recovery (waterflood or water injection) involves:

- the drilling and equipping of 11 water injection wells
- the installation of water supply, storage, treatment,
- high pressure injection equipment and related piping
- replacement of production facilities with larger equipment.

Costs for gas activities were investigated by determining equipping and operating costs for representative gas leases producing from depths of 2,000, 4,000, 8,000, 12,000 and 16,000 feet in 6 onshore regions of the lower 48 States. The summary tables contain composite costs and indices for flow rates of 50, 250, 500, 1,000, 5,000, and 10,000 thousand cubic feet (Mcf) of gas per day by depth and region.

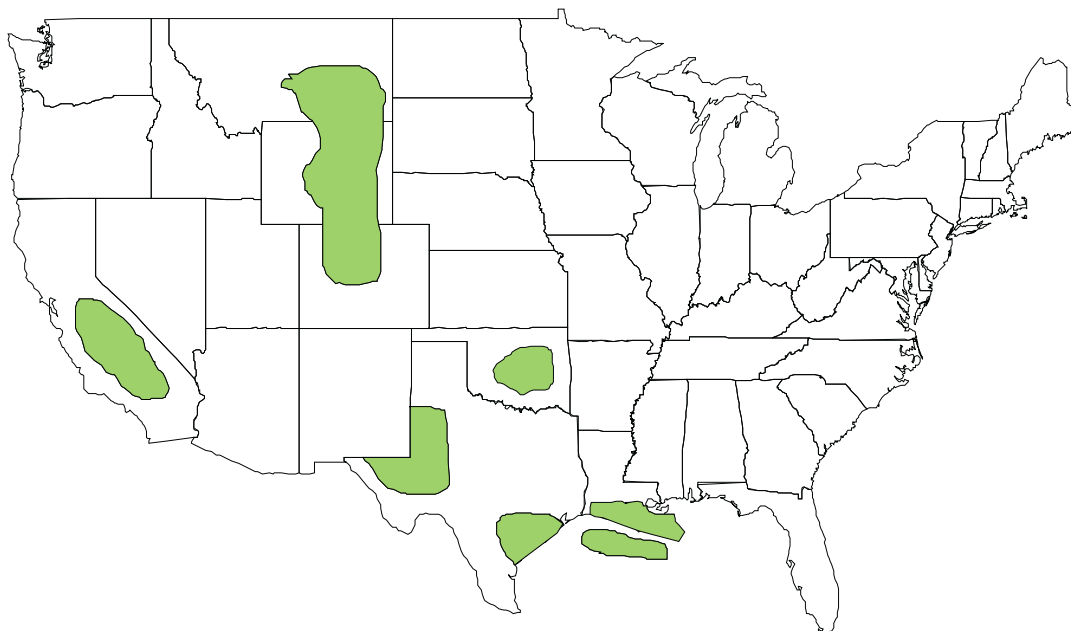
Equipment for gas wells does not cover hydrogen sulfide removal, compression, or special equipment for water removal. Tubing is also not included in the equipment list for gas wells.

¹ American Petroleum Institute, Independent Petroleum Association of America, Mid-Continent Oil and Gas Association, *1998 Joint Association Survey on Drilling Costs*. (Washington, DC, November 1999), American Petroleum Institute.

² American Petroleum Institute, Independent Petroleum Association of America, Mid-Continent Oil and Gas Association, *Joint Association Survey of the U.S. Oil and Gas Producing Industry, 1974, Section II: Expenditures for Exploration, Development and Production*, (Washington, DC, May 1976), American Petroleum Institute.

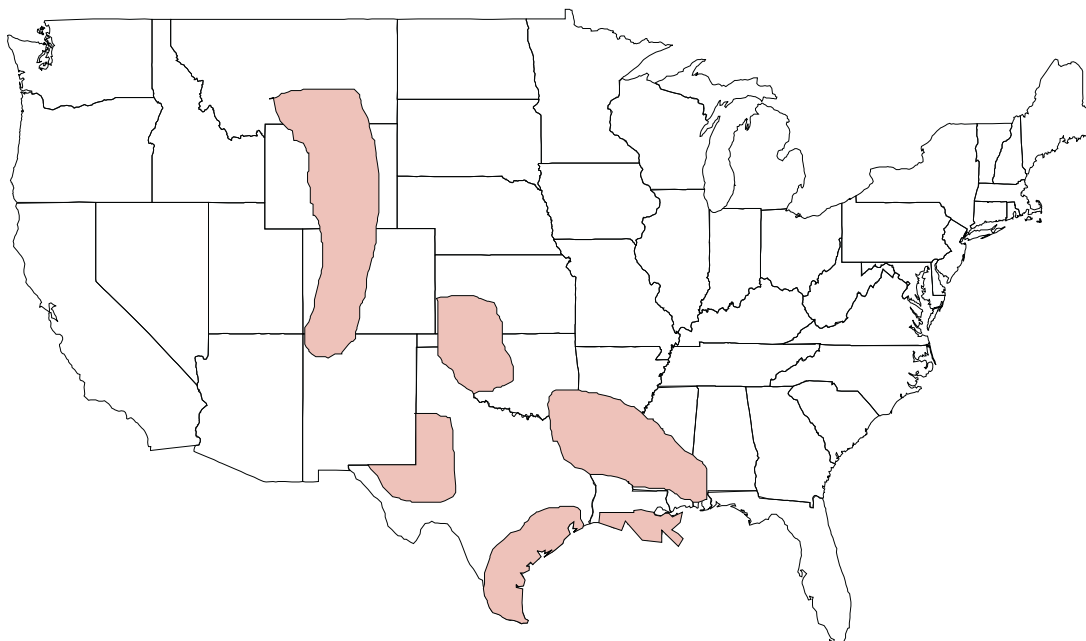
³ U.S. Bureau of the Census, *Annual Survey of Oil and Gas, 1981*, Current Industrial Reports pub. MA-13K (81)-1, (Washington, DC, March 1983).

Figure 1. Geographical Regions for Oil Producing Leases



Source: Energy Information Administration, Office of Oil and Gas.

Figure 2. Geographical Regions for Gas Producing Leases



Source: Energy Information Administration, Office of Oil and Gas.